

Nov. 3, 1925.

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A. H. GREBE
VARIABLE RESISTANCE
Filed May 25, 1922

Fig. 1,

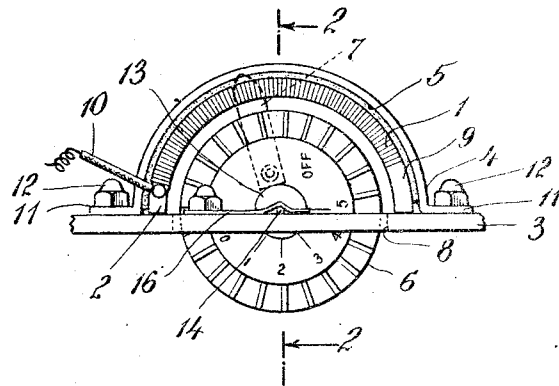


Fig. 2,

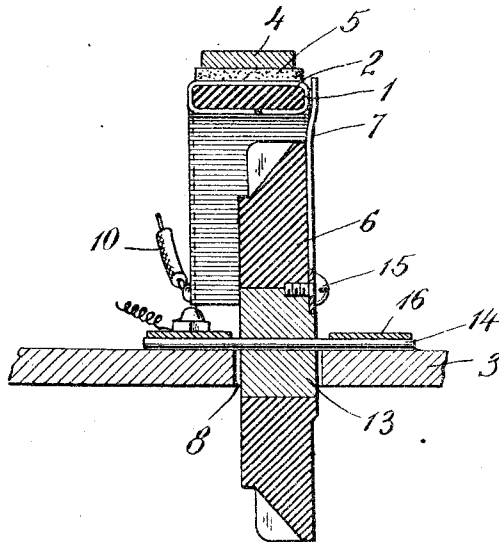
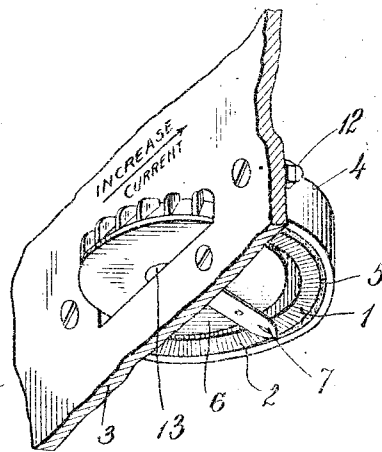


Fig. 3,



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UNITED STATES PATENT OFFICE.

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VARIABLE RESISTANCE.

Application filed May 23, 1922. Serial No. 869,523

To all whom it may concern:

Be it known that I, Alfred H. Grebe, residing at 76 Van Wyck Blvd., Richmond Hill, in the county of Queens, State of New York, have invented certain new and useful Improvements in Variable Resistances; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to variable resistors and has for its object the provision of an unusually compact and simple construction for a panel mounted rheostat.

In modern radio apparatus small variable resistances are widely employed, especially in connection with the operation of vacuum tubes which require an adjustable resistance for filament control. The tendency is to construct auxiliary units such as these so that they are compact and yet capable of being adjusted with ease and precision.

To this end and in accordance with the invention, the resistance element is wound on a core of refractory material which may be semi-circular in form. The element may then be mounted or attached to a panel by a clamp which retains the element and forces the ends of the core to bear against the panel for support. An asbestos strip may be inserted between the element and the clamp to serve as a heat and electric insulator as well as a cushion for the clamp. A control wheel upon which the contact arm may be mounted is journaled on the panel so that a portion of it projects through a slot therein. By means of this arrangement the control wheel may occupy the semi-circular space surrounded by the resistor, only a small segment projecting through the panel, thus making an extremely compact but readily adjustable unit.

A clear understanding of the nature of this invention may be had from the following description and accompanying drawing in which a preferred embodiment is shown. In this drawing:

Fig. 1 shows a plan view of the rheostat completely assembled and attached to a panel.

Fig. 2 is a section on 2-2 of Fig. 1 and shows the construction of the resistance element and its assembly with the other parts.

Fig. 3 is a perspective looking from below and shows the rheostat as used on a panel.

Referring now to these drawings, the improved rheostat comprises a resistor element 1, wound on a semi-circular core 2, which is attached to the panel 3, by means of a clamp 4. A heat and electric insulating material 5 is inserted between the clamp and the resistor. The rotor wheel 6 which bears the contact arm 7 is mounted on the panel so as to lie within the compass of the semi-circular resistor 1 and projects through an opening 8 in the panel, as shown in Fig. 3, to enable the adjustment to be made from the front of the panel.

The resistor consists of a core 2 of insulating material, preferably refractory, upon which is wound a length of resistance wire 1. A portion of the core 2 at the end 9 is left unwound so as to provide a position for the contactor 7 where it will not be in contact with the wire. The wire connector 10 is soldered to the opposite end of the resistor. In this type of construction care must be exercised to see that the turns of the resistance wire 1 are spaced so that they will not short-circuit one another on the inner circumference.

The clamp 4 is semi-circular in form and is provided with two lugs 11, which are drilled to enable the bolts 12 to secure the apparatus to the panel 3. A siliceous material 5 is inserted between the clamp and the resistor and serves a threefold purpose—heat insulation, electric insulation and spring cushion.

The adjusting rotor wheel 6 may be of any design. This wheel is made of a dielectric material and has a brass cylindrical core 13 which rigidly retains the shaft 14. A metal contactor 7 is attached to this wheel by a screw 15 which screws into the wheel so as to make contact with the brass core 13. By means of this construction electrical connection is made from the contactor 7 to the shaft 14, and one of the shaft bearings may be used as terminal. The wheel 6 is adapted to fit concentrically within the compass of the resistor 2, so that the contactor will bear against the resistance wire 1. A portion of the wheel 6 projects through an opening 8 in the panel so as to permit external adjustment.

Slacks may be made on the surface of this

wheel which will register with a selected point on the panel front to indicate the amount of resistance in circuit for any position of the wheel.

6 The wheel is conveniently mounted by pressing the shaft 14 against the panel by means of metal spring clips 16 which are fastened to the panel and exert a spring action on the shaft. A groove across the clip
10 serves to retain the shaft 14 in alignment. One of the clips is used as a terminal, as it makes electrical contact with the shaft and thus with the resistance element 1 as previously explained.

15 The appearance of the completed rheostat is shown in Fig. 3. Of course, in cabinet use the only part seen is a small portion of the wheel 6. The rest, however, is easily accessible and the resistance elements may be
20 easily interchanged with very little labor or disturbance.

To recapitulate, this invention provides a rheostat which is made up of a semicircular element 2 which may be clamped to a panel
25 3 so as to enclose a portion of the regulating wheel 4. By this construction a very compact and efficient arrangement is secured which is admirably adapted for panel mountings.

30 The accompanying drawing and related description, disclosing the nature of the invention, are not intended to be taken as the only embodiment nor to be construed so as to at all limit the spirit or scope of the
35 invention.

I claim:

1. A rheostat comprising a mounting, an adjustment control partially projecting

through a slot in said mounting and a resistance element attached to said mounting 40 so as to partially encircle said control.

2. A rheostat for panel mounting, comprising a semicircular resistor, a clamp adapted to secure said resistor to a panel perpendicular thereto, an adjusting wheel 45 provided with a contactor cooperating with said resistor, and an axle electrically connected with said contactor, spring clips engaging said axle for mounting said wheel on a panel so that a portion of said wheel 50 projects through said panel and the remainder lies substantially within the compass of said resistor.

3. A rheostat comprising a support having a slot therein, an adjusting wheel perpendicular to said support and adapted to 55 partially project through said slot, retaining means to mount said adjusting wheel on said support, a semicircular resistor secured to said panel so as to encompass a portion of said wheel, a contactor mounted 60 on said wheel in electrical connection with said retaining means and said resistor, and means for indicating the position of the contactor. 65

4. A rheostat comprising a support, a control revolvably mounted on said support with its axis parallel to the surface thereof, said control wheel partially projecting through an opening in said support, a resistor mounted on said support, and a contactor engaging said resistor, said control being operable to effect relative movement of said contactor and resistor. 70

In testimony whereof I affix my signature.
ALFRED H. GREBE.